

# EPIDURAL OPIATES AND DEGENERATIVE BACK PAIN

by

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THE relief of acute pain by epidural and intrathecal opiates has been widely explored in the past few years. The existence of spinal opioid or endorphin receptor sites explains the excellent analgesia which can be achieved by these routes. It is interesting that endorphin levels in the cerebrospinal fluid have been shown to be markedly lower than normal in both acute and chronic pain.<sup>1</sup> Most studies using spinal opiate administration have been in patients with acute pain.

Patients with intractable pain due to degenerative bony changes in the spine are most frequently managed with non-steroidal anti-inflammatory agents, but these have to be taken frequently, are not without side-effects, and often are ineffective. The aim of this study was to find whether such pain could be alleviated for a prolonged period using a single administration of epidural opiate.

## PATIENTS AND METHOD OF TREATMENT

Twenty consecutive patients with chronic back pain were referred to the pain relief clinic after full investigation by a consultant, usually an orthopaedic surgeon. All had a history of back pain for more than one year, and had degenerative changes in the spine.

All patients were examined and pain level assessed, using a visual analogue scale (Figure)<sup>2</sup> This is a simple and reliable method of subjective pain assessment. The scale is a 10 cm line on which the patient indicates pain severity ranging from no pain to the worst pain imaginable.

Figure. *Visual analogue scale used to determine the severity of pain*

**NO PAIN**

**THE WORST PAIN  
I COULD IMAGINE**

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Please indicate the severity of your pain with a mark on this line

All patients were admitted to hospital for a 48 hour period. The injection was carried out over the nerve roots corresponding to the painful area, the patient lying on the painful side. The needle position within the epidural space was confirmed using 0.25 ml Myodil X-ray contrast media. Diamorphine 2 mg in 4 ml plain bupivacaine 0.25 per cent was then injected. The patients were observed closely while remaining in the same posture for the next 30 minutes, and then transferred to the ward, where respiration in particular continued to be observed by the nursing staff.

The patients' assessment of their pain was repeated at 24 hours, and any other complications noted. 8 weeks after discharge, pain scores were again measured, and in those where pain had returned, alternative treatment was arranged. The remainder, in whom pain relief was still good, were seen and assessed again at 6 months.

## RESULTS

Of the 20 patients, three were male and seventeen female, aged between 32 and 75, with a mean age of 50. Fourteen were taking non-steroidal anti-inflammatory analgesics on a regular basis. None had any other serious condition.

Using the visual analogue scale described, the mean severity of pain before treatment was 8.1 (SE 0.7). By twenty-four hours 19 patients had marked relief of their symptoms, with a mean pain score of 2.1 (SE 1.6), one observed no difference. By eight weeks, 8 patients were still receiving benefit — mean score 2.7 — but by six months pain had returned to pre-treatment levels in all 20 patients.

The number of patients who had good pain relief at each time of assessment is shown in the Table — good pain relief has been arbitrarily defined as a fall in pain score of 3 cm or more from the initial value on the visual analogue scale.

There were no serious side-effects. The incidence of minor problems was as follows—nausea 3, vomiting 2 and itching 5 patients.

TABLE

*Numbers of patients with marked pain relief following a single epidural injection of opiate*

<i>Time after injection</i>	<i>Number of patients</i>	<i>Good pain relief</i>	<i>Significance compared to control score</i>
24 hours	20	19	$\text{Chi}^2 = 32.5, p < 0.001$
8 weeks	20	8	$\text{Chi}^2 = 7.66, p < 0.001$
6 months	20	0	ns

## DISCUSSION

Low back pain is a common and disabling disorder likely to affect most people during their lifetime. Conventional methods of treatment have limited success and potential problems. Epidural opiates have been used in the management of various types of chronic pain. They act largely at specific opioid receptor sites in the spinal cord to inhibit nociceptive transmission.<sup>3</sup> The duration of analgesia following epidural opiates in the management of chronic pain greatly exceeds that in acute pain, but duration of analgesia does not increase in proportion to the dose of drug administered.<sup>4</sup>

Morphine has been the most commonly used drug for this type of work, but diamorphine was used in this study because of its greater lipid solubility, and its ready availability in a preservative-free preparation. The higher lipophilicity of diamorphine aids neural uptake, and also facilitates removal from the CSF, therefore reducing the likelihood of cephalad transfer of the drug to cause respiratory depression.<sup>5</sup> The use of these opiates by epidural injection does not appear to lead to any local tissue damage.<sup>6</sup>

The complications listed are those which have been reported following epidural or intrathecal use of opiate drugs. The incidence of nausea and vomiting and of itch are

similar to those reported elsewhere. Urinary retention was not a problem here, but is a common complication in postoperative cases. Respiratory depression, usually delayed by 4-18 hours, is the single most worrying complication to follow intraspinal opiate administration. The incidence of this may be about 4-7 percent,<sup>7</sup> and it is probably due to spread of opiate within the CSF to reach the vital centres in the brain-stem. The possibility of this complication requires close postoperative observation.

The pain relief achieved in the patients studied was judged to be worthwhile, and it was free of any serious complications, and so should be a useful in-patient procedure for management of this type of pain.

### SUMMARY

The duration of pain relief resulting from a single epidural injection of diamorphine was studied in 20 patients suffering from chronic back pain of more than 1 year's duration, and with radiologically demonstrable degenerative changes. Pain severity was measured using a visual analogue scale. Each patient received 2 mg diamorphine in 4 ml plain bupivacaine 0.25 percent by the epidural route.

No serious side-effects were encountered, although transient nausea or itching occurred in some patients. The procedure was considered safe and useful for the in-patient management of this type of pain. Follow up study over six months indicated relief of pain for more than two months in 40 percent of the patients.

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